



## **BMT Renewables Limited**

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### **Copenhagen Offshore Wind 2005**

**26<sup>th</sup> – 28<sup>th</sup> October 2005**

**Title** Assessing the Financial Viability of Offshore Wind Farms

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#### **Abstract of Paper**

The financial viability of offshore wind is driven by understanding and managing cost and revenue uncertainty. No offshore wind farm has been in service for more than 10% of its typical 30 year design life. Potential financial liabilities are huge for developers, operators, turbine suppliers and financiers, in terms of cost variability, revenue losses and supply obligations, and robust evaluations of long term energy yield, maintenance campaigns, spares, levels of unscheduled maintenance and warranty exposure are required.

The paper will describe the work done to date in developing a reference model to quantify asset performance and lifecycle cost.

The reference model allows the Developer/Operator to determine factors such as:

- the optimum number and rating of turbines
- the predicted unavailability, loss of revenue and lifecycle corrective costs and the cost of unavailability in terms of electricity supply obligations
- the energy yield, NPV, ROI, financing sensitivity, simulated effect on the balance sheet and optimum loan structuring
- if optional manufacturer warranty period extensions should be negotiated and how much will they be worth?
- the level of maintenance support required to minimise unavailability in terms of spares, deployment of crew, dedicated service boats, etc,

It also allows the turbine supplier to determine:

- the site-specific warranty period corrective costs
- the site-specific financial exposure associated with any warranty extensions
- the levels of component reliability required to achieve acceptable offshore warranty exposure.

#### **About the Author**

Michael Starling is a Chartered Engineer. He was educated at George Watson's College, Edinburgh and Southampton University where he studied Mechanical Engineering. In a varied career he has worked for Ferranti, the European Centre for High Energy Physics (CERN), Marconi, BP and been self employed prior to joining British Maritime Technology.

He has worked for BMT since 1990. He has 14 years experience in Reliability, Safety and Risk where he has worked on major projects in Aerospace, Defence, Energy, Railways, and Shipping

He joined BMT Renewables in 2004 and is currently working on projects supporting the assessment of navigation around offshore wind farms and the economics of offshore wind farms.